

PATENT
Docket Number 58060-010200

Claim 1 (currently amended): A rotor blade assembly for providing vertical lift to an aircraft comprising

a rotor head;

a plurality of cam surfaces;

a plurality of blades, each blade attached to a cam surface, ~~whereby~~ wherein movement of ~~[[a]] at least one of the plurality of cam surfaces~~ causes the radial distance between the distal tip of the attached blade and the center of the rotor head to alter.

Claim 2 (currently amended): The rotor blade assembly of Claim 1 further comprising:

an operating cam rotatably mounted relative to the rotor head, wherein the ~~[[a]]~~ plurality of cam surfaces are located on the operating cam.

~~a plurality of blades, each blade attached to a cam surface;~~

~~whereby movement of a cam surface causes the radial distance between the distal tip of the attached blade and the center of the rotor head to alter.~~

Claim 3 (currently amended): The rotor blade assembly of claim 2 ~~wherein the operating cam further comprises comprising:~~

the operating cam having upper and lower plates;

cam surfaces on the upper plate substantially matching cam surfaces on the lower plate;

each blade spar positioned between the upper and lower plates; and

each blade spar attached to a cam surface on the upper plate and the substantially matching cam surface on the lower plate.

Claim 4 (currently amended): ~~A rotor blade assembly for providing vertical lift to an aircraft comprising: The rotor blade assembly of Claim 2,~~

~~a rotor head;~~

~~an operating cam;~~

~~a plurality of cam surfaces on the operating cam;~~

~~a plurality of blades, wherein~~ each blade having comprises a blade spar, wherein ~~the each blade spar is attached to a cam surface.~~

~~whereby movement of a cam surface causes the radial distance between the distal tip of the attached blade and the center of the rotor head to alter.~~

Claim 5 (currently amended): ~~A rotor blade assembly for providing vertical lift to an aircraft comprising: The rotor blade assembly of Claim 2,~~

~~a rotor head;~~

PATENT
Docket Number 58060-010200

~~an operating cam;~~
~~a plurality of cam surfaces on the operating cam;~~
~~a plurality of blades, wherein each blade having comprises a root and a tip, and~~
~~wherein each root is attached to a cam surface;~~
~~whereby movement of a cam surface causes the radial distance between the distal~~
~~tip of the attached blade and the center of the rotor head to alter.~~

Claim 6 (original): The rotor blade assembly of Claim 1 further comprising:

at least one pitch controller attached to at least one blade;
each pitch controller connected to a swash plate; and
the swash plate moving at least one pitch controller whereby the pitch of its corresponding blade is altered; whereby movement of a cam surface causes the radial distance between the distal tip of the attached blade and the center of the rotor head to alter.

Claim 7 (original): The rotor blade assembly of claim 6 further comprising:

a plurality of bladelets positioned near the outer periphery of the rotor head;
the bladelets having a retracted position wherein substantially all portions of the bladelets are within the outer periphery of the rotor head; and
a bladelett control mechanism for imparting force to the bladelets, wherein the imparted force moves a portion of one or more bladelets beyond the periphery of the rotor head, whereby passing air impacts the moved one or more bladelets exerting a pressure which causes rotational movement of the rotor blade assembly.

Claim 8 (original): The rotor blade assembly of claim 7 wherein the bladelett control mechanism further comprises:

an actuator; and
an actuator cable attached to the actuator and one or more bladelets, wherein energizing the actuator pulls the actuator cable whereby the actuator cable transmits force to the one or more bladelets.

Claim 9 (original): The rotor blade assembly of claim 6 further comprising:

a blade spar on each blade;
each blade spar connected to one cam surface;
a spar guide having an opening, said blade spar passing through the opening in a sliding fit;
said pitch controller having an opening, said blade spar passing through the opening in a sliding fit;

PATENT
Docket Number 58060-010200

the pitch controller opening having an internal shape substantially matching the external shape of the blade spar; and
a pitch control rod interacting between the pitch controller and the swash plate;
whereby the pitch controller controls the pitch of each blade spar.

Claim 10 (original): The rotor blade assembly of claim 9 wherein the internal shape of the pitch controller opening is polygonal.

Claim 11 (original): The rotor blade assembly of claim 9 wherein the internal shape of the pitch controller opening is splined.

Claim 12 (original): The rotor blade assembly of claim 9 wherein the internal shape of the pitch controller includes curved surfaces.

Claim 13 (original): The rotor blade assembly of claim 9 further comprising a swiveling connector connecting the spar guide to the rotor head, wherein the spar guide may swivel relative to the rotor head.

Claim 14 (original): A rotor blade assembly for providing vertical lift to an aircraft comprising:

- a rotor head;
- a plurality of cam surfaces;
- a plurality of blades, each blade attached to a cam surface;
- whereby movement of a cam surface causes the attached blade to move longitudinally altering its lift characteristics.

Claim 15 (original): A rotor blade assembly for providing vertical lift to an aircraft comprising:

- a rotor head;
- at least one cam surface;
- a blade attached to a cam surface;
- a portion of the blade providing lift;
- whereby movement of a cam surface causes the attached blade to decrease or increase the length of the portion providing lift.

Claim 16 (original): A rotor blade assembly for providing vertical lift to an aircraft comprising:

- a rotor head;
- a rotatable wheel;

PATENT
Docket Number 58060-010200

a plurality of blades, each blade attached to the rotatable wheel;
whereby movement of the rotatable wheel causes the radial distance between the distal tip of the attached blade and the center of the rotor head to alter.

Claim 17 (original): A rotor blade assembly for providing vertical lift to an aircraft comprising:

a rotor head;
an operating wheel rotatable around a central point, and rotatable relative the rotor head;
a plurality of blades, each blade attached to the operating wheel;
whereby movement of the operating wheel causes the radial distance between the distal tip of the attached blade and the center of the rotor head to alter;
at least one pitch controller attached to at least one blade;
each pitch controller connected to a swash plate; and
the swash plate moving at least one pitch controller whereby the pitch of its corresponding blade is altered.

Claim 18 (original): The rotor blade assembly of claim 17 further comprising:

a plurality of bladelets positioned near the outer periphery of the rotor head;
the bladelets having a retracted position wherein substantially all portions of the bladelets are within the outer periphery of the rotor head; and
a bladelett control mechanism for imparting force to the bladelets, wherein the imparted force moves a portion of one or more bladelets beyond the periphery of the rotor head, whereby passing air impacts the moved one or more bladelets exerting a pressure which causes rotational movement of the rotor blade assembly.

Claim 19 (original): The rotor blade assembly of claim 17 wherein the operating wheel includes a plurality of lobes, one or more of said lobes adapted to affixing a blade spar thereto.

PATENT
Docket Number 58060-010200

Claim 20 (original): The rotor blade assembly of claim 17 further comprising:
the operating wheel having upper and lower plates;
each blade spar positioned between the upper and lower plates; and
each blade spar attached to both the upper plate and the lower plate.

Claim 21 (original): The rotor blade assembly of claim 18 wherein the bladelett control mechanism further comprises:
an actuator; and
an actuator cable attached to the actuator and one or more bladeletts, wherein energizing the actuator pulls the actuator cable whereby the actuator cable transmits force to the one or more bladeletts.

Claim 22 (original): The rotor blade assembly of claim 17 further comprising:
a blade spar on each blade;
each blade spar connected to the operating wheel;
a spar guide having an opening, said blade spar passing through the opening in a sliding fit;
said pitch controller having an opening, said blade spar passing through the opening in a sliding fit;
the pitch controller opening having an internal shape substantially matching the external shape of the blade spar; and
a pitch control rod interacting between the pitch controller and the swash plate;
whereby the pitch controller controls the pitch of each blade spar.

Claim 23 (original): The rotor blade assembly of claim 22 wherein the internal shape of the pitch controller opening is polygonal.

Claim 24 (original): The rotor blade assembly of claim 22 wherein the internal shape of the pitch controller opening is splined.

Claim 25 (original): The rotor blade assembly of claim 22 wherein the internal shape of the pitch controller includes curved surfaces.

Claim 26 (original): A rotor blade assembly for providing vertical lift to an aircraft comprising:

a rotor head;
one or more blades attached to the rotor head;

PATENT

Docket Number 58060-010200

a piston chamber at the proximal end of said one or more blades, nearest to the center of the rotor head;

a spar guide on each blade;

a piston on each spar guide cooperating with the piston chamber, whereby fluid is forced into one side of the piston chamber driving the associated blade hydraulically in one direction, and whereby fluid is forced into the other side of the piston chamber driving the associated blade in the other direction;

at least one pitch controller attached to at least one blade;

each pitch controller connected to a swash plate; and

the swash plate moving at least one pitch controller whereby the pitch of its corresponding blade is altered.

Claim 27 (original): A rotor blade assembly for providing vertical lift to an aircraft comprising:

a rotor head;

one or more blades attached to the rotor head;

means for altering the distance of the distal end of at least one of the blades relative to the center of the rotor head;

a spar guide on each blade;

at least one pitch controller attached to at least one blade;

said pitch controller connected to a swash plate; and

the swash plate moving at least one pitch controller whereby the pitch of its corresponding blade is altered.

Claim 28 (original): A rotor blade assembly for providing vertical lift to an aircraft comprising:

a rotor head;

one or more blades attached to the rotor head;

means for altering the distance of the distal end of at least one of the blades relative to the center of the rotor head;

a spar guide on each blade; and

at least one pitch controller attached to at least one blade, whereby the pitch of the corresponding blade is altered.

Claim 29 (original): The rotor blade assembly of claim 28 wherein the means for altering the distance is a screw drive.

PATENT

Docket Number 58060-010200

Claim 30 (original): The rotor laid assembly of claim 28 wherein the means for altering is an electric actuator.

Claim 31 (original): The rotor blade assembly of claim 28 wherein the means for altering is a magnetic actuator.

Claim 32 (original): A rotor blade assembly for providing vertical lift to an aircraft comprising:

- a rotor head;
- one or more blades attached to the rotor head;
- a cable attached at the proximal end of said one or more blades, nearest to the center of the rotor head;
- a spar guide on each blade;
- a cable retractor to shorten or lengthen the cable to alter the distance from the distal end of the blade relative to the center of the rotor head;
- at least one pitch controller attached to at least one blade;
- each pitch controller connected to a swash plate; and
- the swash plate moving at least one pitch controller whereby the pitch of its corresponding blade is altered.

Claim 33 (original): The rotor blade assembly of claim 32 wherein the cable retractor is a reel.

PATENT
Docket Number 58060-010200

RESPONSE TO ELECTION REQUIREMENT

In the Office Action dated October 4, 2004, the Examiner asserted that the claims are directed to several patentably distinct species. Specifically, the Examiner requests election from one of the following species:

An election of the following inventions.

- I. Species A refers to figures 1-11.
- II. Species B refers to figures 12 and 13.
- III. Species C refers to figure 14.
- IV. Species D refers to figure 15.
- V. Species E refers to figures 16-17.

In response to this election requirement the Applicant provisionally elects Species A with consisting of corresponding Claims 1-15.

The election requirement is, however, respectfully traversed. Applicant respectfully requests that the restriction requirement be withdrawn. Specifically, the MPEP states:

(a) Two or more independent and distinct inventions may not be claimed in one national application, except that more than one species of an invention, not to exceed a reasonable number, may be specifically claimed in different claims in one national application, provided the application also includes an allowable claim generic to all the claimed species and all the claims to species in excess of one are written in dependent form (§ 1.75) or otherwise include all the limitations of the generic claim.

The Examiner has stated that no claims are generic. Furthermore, the Examiner has stated that upon the allowance of a generic claim, Applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 C.F.R. 1.141. Accordingly, Claims 1-5 have been re-written to further highlight the presence of a generic claim and species.

PATENT

Docket Number 58060-010200


CONCLUSION

Applicant respectfully requests withdrawal of the election requirement on either of the bases as discussed. Such action on the part of the Examiner is respectfully requested. Applicant respectfully submits that the application is in good and proper form for allowance. The Examiner is cordially invited to telephone the undersigned for clarification or for comments regarding the above response to expedite prosecution of this application.

Authorization is hereby given to charge any additional fees or credit overpayment to Deposit Account No. 50-2638. Please reference Attorney Docket Number 58060-010200 when charging any payments or credits in connection with this application.

Respectfully submitted,

Date: November 4, 2004


Eglia Nair Flores
Reg. No. 54,103

Customer Number 33717
GREENBERG TRAURIG, LLP
2450 Colorado Avenue, Suite 400E
Santa Monica, CA 90404
Phone: (310) 586-6511
Fax: (310) 586-5511
E-mail: floresn@gtlaw.com

LA-FSI\307445\01\58060.010200